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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/023,907	12/21/2001	Tatsuto Yamazaki	43888-123	5239

7590

08/06/2003

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Washington, DC 20005-3096

EXAMINER

ALEJANDRO, RAYMOND

ART UNIT	PAPER NUMBER
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1745

6

DATE MAILED: 08/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/023,907

Applicant(s)

YAMAZAKI ET AL.

Examiner

Raymond Alejandro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) 5-11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 December 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I and Species 1 (claims 1-4) in Paper No. 5 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Priority

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 02/27/02 (paper # 2) was considered by the examiner.

Drawings

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: 1a, 1a, 2a, 2b, 3a and 3b. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

5. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

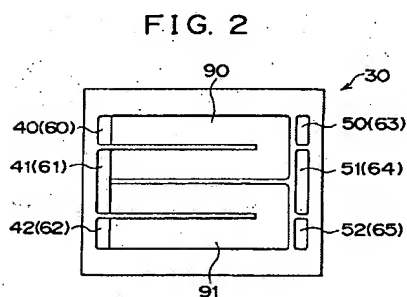
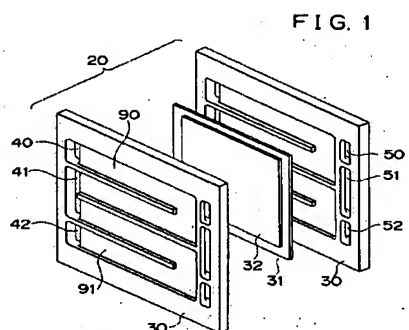
8. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizuno et al US 2002/0012827 in view of the Japanese publication JP 2000-133289.

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The instant application is directed to a polymer electrolyte fuel cell wherein the disclosed inventive concept comprises the specific separator structure. Other limitations include the specific oxidant inlet manifold; and the cooling water inlet manifold.

Regarding claim 1:

Mizuno et al disclose a polymer electrolyte fuel cell having a stack structure formed by stacking a plurality of unit cells. Figures 1 and 2 below show the unit components and the separators (SECTION 0042). The unit cell 20 has an electrolyte membrane 31, an anode 32, a cathode and a separator 30 (SECTIONS 0043/0048).



It is disclosed that for operation of the fuel cell, a fuel gas supply device is connected thereto and an oxidative gas supply device is also connected thereto (SECTION 0050).

It is also disclosed that when the stack structure 15 is formed by stacking unit cells 20, the holes 40 of the separator's 30 form an oxidative gas supply manifold 60 extending to the interior of the stack structure 15; likewise, the holes 41 form an oxidative gas transit manifold 61

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extending through the interior of the stack; the holes 42 form an oxidative gas discharge manifold 62; the holes 50 form a fuel gas supply manifold and the holes 51 form a fuel gas discharge manifold 65 (SECTION 0047). It is also disclosed that the separator includes at least a first hole portion, a second hole portion and a third hole portion for each forming a portion of gas manifold of the fuel cell, the first hole portion, the second hole portion and the third hole portion including a first hole, a second hole and a third hole, respectively which extend through a thickness of the separator, and a recessed portion for forming a gas passage (SECTION 0023).

Regarding claim 2:

Figures 16-17 below show separators having the gas transit manifold construction is provided only for the oxidative gas. It is evident from Figures 16-17 that the separator comprises oxidant gas inlet/outlet manifolds comprising holes on the side and gas flow channels.

FIG. 16

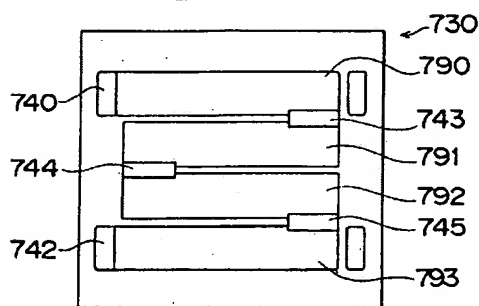
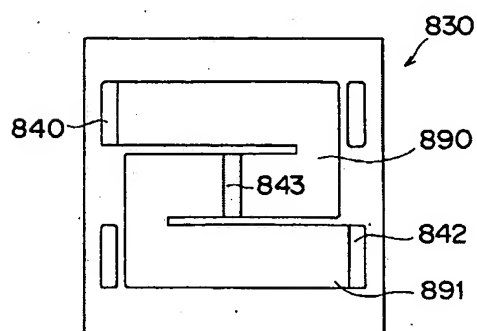


FIG. 17



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Regarding claim 3:

It is disclosed that the separator has holes for forming a cooling water passage that conveys cooling water, in addition to the holes 40-42 for forming the oxidative gas manifolds and the holes 50-52 for forming the fuel gas manifolds; the holes for forming the cooling water passage may be formed in the separators 30, at positions near two sides of each separator 30 that are relatively remote from the holes 40-42 and 50-52 (SECTION 0054).

Regarding claim 4:

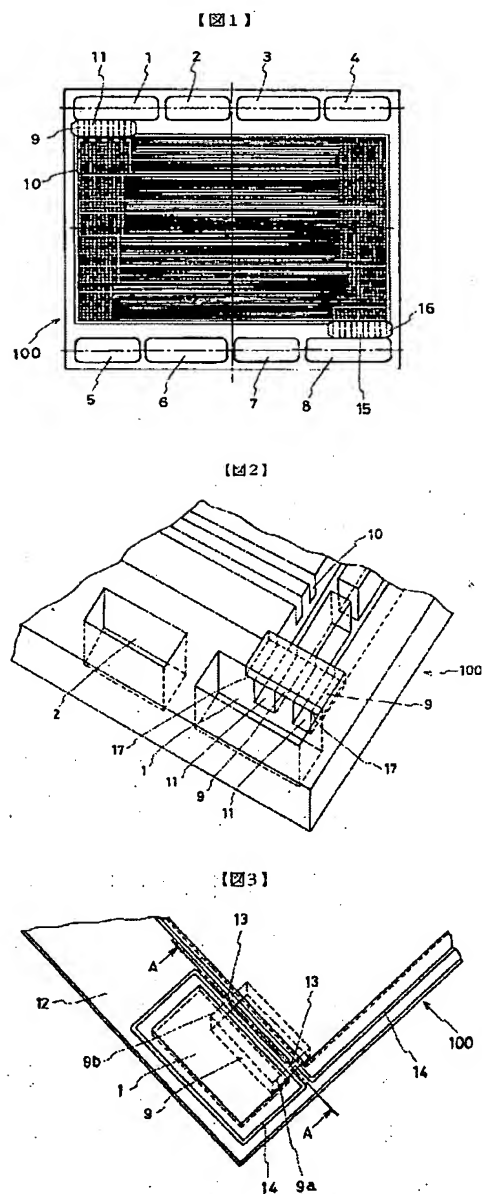
It is disclosed that although the oxidative gas supply manifold 60 and the oxidative gas discharge manifold 62, and the fuel gas supply manifold 63 and the fuel gas discharge manifold 65 convey the gas in the opposite directions, it is also possible to adopt a manifold construction in which the supply manifold and the discharge manifolds convey the gases in the same direction (SECTION 0061). It is further disclosed that although in the disclosed separators 730,830 the gas transit manifold construction is provided only for the oxidative gas, it is also possible to provide a similar gas transit manifold construction for the fuel gas (SECTION 0097).

Mizuno et al disclose a fuel cell comprising a configured separator according to the foregoing. However, Mizuno et al do not expressly disclose the side connection groove.

The JP'289 publication discloses a gas manifold integrated separator for solid polymer electrolyte fuel cell wherein a gas guide port connecting a gas guide manifold hole and a gas passage groove section and a gas discharge port connecting a gas discharge manifold hole and the gas groove section are covered with a flat plate 9, and the gas guide port and the gas

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discharge port are formed into a tunnel structure in the fuel cell separator 100. **Figures 1-3** below illustrate the separator comprising the grooves and the tunnel structure.



In view of the above, it would have been obvious to one skilled in the art at the time the invention was made to make the side connection groove of the JP'289 publication in the separator of Mizuno et al because the JP'289 publication reveals that the specified side

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connection groove feature prevent a gas leak from a flat plate section covering a gas guide port and a discharge port. Thus, it provides a gas manifold integrated separator having excellent gas seal, and hence, a highly durable fuel cell electrochemical device battery is obtained.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond Alejandro whose telephone number is (703) 306-3326. The examiner can normally be reached on Monday-Thursday (8:30 am - 7:00 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on (703) 308-2383. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Raymond Alejandro
Examiner
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A handwritten signature in black ink, appearing to read 'RAM', is written over the printed name and title of the examiner.